

A1
alternative apparatus – commonly referred to as a step-and-scan apparatus – each target portion is irradiated by progressively scanning the mask pattern under the projection beam in a given reference direction (the “scanning” direction) while synchronously scanning the substrate table parallel or anti-parallel to this direction; since, in general, the projection system will have a magnification factor M (generally <1), the speed V at which the substrate table is scanned will be a factor M times that at which the mask table is scanned. More information with regard to lithographic devices as here described can be gleaned, for example, from US 6,046,792, incorporated herein by reference. --

B2
Page 5, before line 1, insert:

--SUMMARY OF THE INVENTION--

B3
Page 8, line 8, insert:

--BRIEF DESCRIPTION OF THE DRAWINGS--

B4
Page 8, line 24, insert:

--DETAILED DESCRIPTION OF THE INVENTION--

Page 9, delete the whole paragraph starting in line 12 and replace it with the following new paragraph:

PB
-- The beam PB subsequently intercepts the mask MA which is held in a mask holder on a mask table MT. Having passed through the mask MA, the beam PB passes through the lens PL, which focuses the beam PB onto a target area C of the substrate W. With the aid of the interferometric displacement measuring means IF, the substrate table WT can be moved accurately, e.g. so as to position different target areas C in the path of the beam PB. Similarly, the first positioning means can be used to accurately position the mask MA with respect to the path of the beam PB, e.g. after mechanical retrieval of the mask MA from a mask library. In general, movement of the object tables MT, WT will be realized with the aid of a long stroke module (coarse positioning) and a short stroke module (fine positioning), which are not explicitly depicted in Figure 1. --

Page 9, delete the whole paragraph starting in line ~~22~~ and replace it with the following new paragraph:

-- The depicted apparatus can be used in two different modes:

1. In step mode, the mask table MT is kept essentially stationary, and an entire mask image is projected at once (i.e. a single "flash") onto a target area C. The substrate WT is then shifted in the x and/or y directions so that a different target area C can be irradiated by the beam PB; --

Page 14, delete the whole paragraph starting in line 28 and replace it with the following new paragraph:

-- While we have described above a specific embodiment of the invention it will be appreciated that the invention may be practiced otherwise than described. The description is not intended to limit the invention. --

Please amend the following claims as follows:

1. (Twice Amended) A lithographic projection apparatus comprising:
 - an illumination system to supply a projection beam of radiation;
 - a first object table to hold a projection beam patterning structure capable of patterning the projection beam according to a desired pattern;
 - a second object table to hold a substrate having a surface to be exposed, such that, when held on the table, the said surface lies in a reference plane;
 - a projection system which images the patterned beam onto a target portion of the substrate;
 - a positioning system which moves said second object table between an exposure position, at which said projection system can image said patterned beam onto said substrate, and a measurement position; and

BY
a calibration system to measure lateral displacements of a reference point in a plane of said second object table as a function of tilt, at said measurement position, wherein said calibration system comprises:

a diffraction grating mounted to said second object table;

an illuminator which generates a measurement beam of radiation and directs it to be incident on said diffraction grating so as to be diffracted thereby; and

a detector which detects the position of said diffraction grating.

6. (Twice Amended) Apparatus according to claim 1, wherein said illuminator is arranged to emit said measurement beam along an incident path substantially perpendicular to said diffraction grating and passing therethrough, and comprising a light guide including a retro-reflector mounted to said second object table behind said diffraction grating relative to said illuminator to reflect said measurement beam along a return path substantially parallel to said incident path and passing back through said diffraction grating.

15. (Twice Amended) A method of manufacturing a device using a lithographic projection apparatus comprising:

providing a substrate provided with a radiation-sensitive layer and having target portions thereof to an object table;

providing a projection beam of radiation using an illumination system;

using a projection beam patterning structure to endow the projection beam with a pattern in its cross section;

moving the object table to an exposure position;

projecting the patterned beam of radiation onto said target portions of the substrate;

and

detecting displacements of a reference point of said object table at various angles of tilt when situated at a measurement position.

See the attached Appendix for the changes made to effect the above paragraphs.